PLUS★WARE® NEWS

DEDICATED TO BUSINESS ANALYSIS GRAPHICS

Fall 1987

Volume 1, No. 1

WELCOME TO PLUS*WARE NEWS

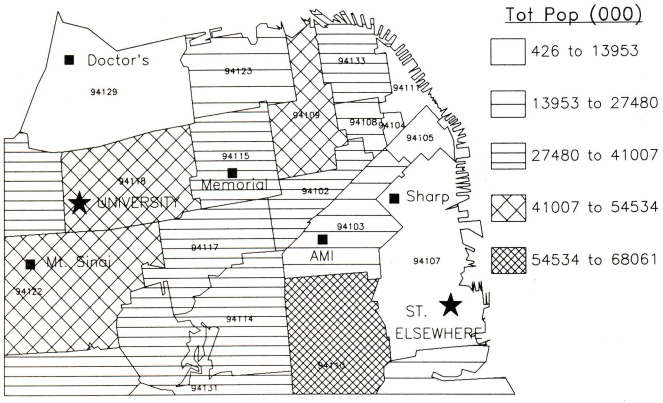
THE BUSINESS ANALYSIS GRAPHICS NEWSLETTER

Welcome to the premier edition of **PLUS*WARE NEWS**, dedicated to STSC's Business Analysis Graphics products. STSC is proud to be on the leading edge of the evolution in analytical graphics with its STATGRAPHICS Statistical Graphics System and ATLAS*GRAPHICS Mapping Software. **PLUS*WARE NEWS** will keep you up to date on unique and interesting applications for analytical graphics, helpful hints on how to get the most out of your systems, information on our HELPLINE services and valuable input from you, the user.

IMPORTANT: This premier issue has been sent to all users of our products. In order to keep receiving **PLUS*WARE NEWS** free–of–charge, be sure to register your software if you have not done so already. Registered users of current versions of our software receive HELPLINE support and other benefits in addition to the newsletter. The registration card is attached to your warranty and license agreement. If you cannot find it, call 301-984-5123 for a replacement.

UNIVERSITY/ST. ELSEWHERE – Northern Metro Market

POPULATION CONCENTRATION – 1986



Hospitals can use Business Analysis Graphics software like ATLAS*GRAPHICS *to explore the medical needs of their market area.*

BUSINESS ANALYSIS GRAPHICS COMES OF AGE

Business Analysis Graphics is an innovative business concept that is coming into its own. In the past decade, presentation graphics have won wide acceptance in business for their ability to communicate information quickly and effectively. In recent years, presentation graphics software has added data analysis tools to its capabilities. Analytical tools like graph overlays, on-screen forecasting and complex statistical functions have greatly expanded the business analysis graphics environment. These powerful tools let you simultaneously visualize and analyze complex problems and scenarios. We are continually discovering the true potential for Business Analysis Graphics products in a wide arena of applications. ATLAS*GRAPHICS and STATGRAPHICS are at the crest of this wave and the diversity of their uses mirrors the expanding potential of Business Analysis Graphics.

One of the innovative uses of Business Analysis Graphics is in the field of demographics. Typically, mapping software has been used in six basic areas: site location analysis, trade area analysis, target market studies, sales performance monitoring and sales territory design, resource planning, and presenting results of market research studies. These applications are used across industries -- financial institutions, advertising agencies, retail chains, government, education, health care and many others. By integrating statistical and mapping capabilities, demographic researchers in all fields can attain a higher level of geographic data analysis.

For example, the JX Reynolds Company, a marketing consulting firm specializing in the health care industry, uses ATLAS*GRAPHICS to provide hospitals with insight into their target markets, service areas, and market share. Like any business, hospitals need to understand their market position and how to improve it. JX Reynolds uses ATLAS*GRAPHICS to identify target markets for their client hospitals' physicians and services. Physicians can be viewed as store fronts for a hospital. Hospitals need to know whether their "stores" (physicians) are providing the services needed in specific geographic areas.

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SUPPORT CORNER

HANDY HINTS FOR THE HELPLINE

Over the last year, there has been a dramatic rise in the number of users of PLUS*WARE products. We are making every possible effort to maintain the highest level of customer service. To insure that our HELPLINE can provide you with support in the most effective and efficient manner, we have some information and suggestions for you.

At the end of April, we started to use a computer-based telephone answering service to track all incoming calls. The HELPLINE can now receive several calls at the same time, virtually eliminating busy signals. We can respond to calls in the order they were received, usually within an hour. Heavy peak periods may increase that interval slightly. Some people find the answering machine impersonal, but we have found it has been far more efficient in helping us respond to users more rapidly.

There are several ways you can help us help you. First, make good use of the supplied documentation. The manuals cover most of the situations likely to be encountered and will usually provide the needed help. The index and table of contents will help you locate the information you need.

If you can't get the answers you need in the documentation, call the HELPLINE **(301)-984-5489.** Before you call, here are some helpful tips:

1. Have a clear picture of the problem in order to be able to explain it. If it involves the behavior of the system, jot down the steps it took to reach the problem.

2. Know your hardware and software environment. This should include the make and model of the computer and any peripheral devices such as printers and plotters, the make and type of the graphics board, the version number of the DOS operating system and, of course, the version number of your STATGRAPHICS or ATLAS*GRAPHICS software. **IMPORTANT:** Make sure you know the software's serial number.

3. With this data in hand, call the HELPLINE. Leave your name, telephone number, product name, serial number and version number. Also, include a brief description of the problem. Please be sure to provide all this data. Believe it or not, many people forget to leave their phone number.

4. Please try to stay near the phone after calling. It helps everyone if we can reach you on the first call. If we reach an answering machine or a secretary, we will try to leave an answer to your problem, but we would rather speak to you directly. The HELPLINE is staffed from 10:00 a.m. to 5:30 p.m. Eastern Time, Monday through Friday.

5. If we do not respond within a few hours, call back and leave the information again. Your message may not have come through clearly. We do our best to reach you as soon as possible.

HELPLINE support is available only to registered users of the current versions of our software. We will respond to new users before their registration cards are received. After that initial call, you must register within two weeks to continue receiving support.

ARE YOU A REGISTERED USER?

Users who register their STSC Business Analysis Graphics product receive free HELPLINE service and will continue to receive PLUS*WARE NEWS. **Check the mailing label on this copy of your newsletter to see if you are a registered user.** There will be an AG (ATLAS*GRAPHICS) or SG (STATGRAPHICS) to the right of your name if you have registered that product. If you do not see that symbol and wish to register, there should be a registration card attached to your warranty. If not, call STSC at **301-984-5123** for a replacement registration card.

PLUS★WARE® NEWS

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USING STATGRAPHICS OPERATORS

by Michaela Jackson
Quality Assurance Specialist

One of the unique features of STATGRAPHICS is its operators which allow you to manipulate data into the form that you need, at the time that you need it. These operators can be used in any statistical procedure or data input panel and require no preliminary set-up. The most useful and generally applicable operators are catenate (expressed as a comma), "**RESHAPE**", "**TAKE**", "**DROP**", and index (expressed as [r,c]).

The catenate operator is used in a statement such as

var1,var2

where **var1** and **var2** are the names of STATGRAPHICS variables. The catenate operator takes two variables and adds the second to the end of the first creating a new variable with all the observations in both variables.

If **var1** is **1 2 3**, **var2** is **4 5 6**, and **var3** is **7 8 9**

then **var1, var2** is **1 2 3 4 5 6**

and **var3,var1,var2** is **7 8 9 1 2 3 4 5 6**

The **RESHAPE** operator creates a matrix of numbers from a string of numbers. You specify the number of rows and columns on the left, and the string of numbers on the right. For example,

2 3 RESHAPE var1, var2

gives the matrix

1 2 3
4 5 6

The **TAKE** operator is used in a statement such as

n TAKE var

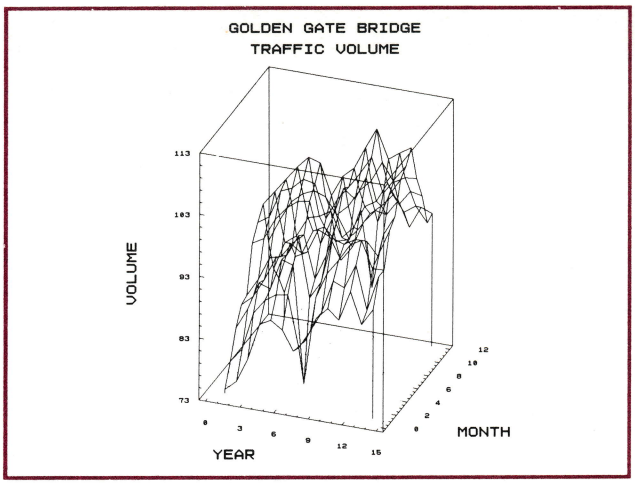
where **n** is the number of observations to be taken and **var** is the name of the variable. If **n** is positive then the first **n** observations will be taken from **var**. If **n** is negative then the last **n** observations will be taken from **var**.

If **var4** is **2 4 6 8 10** then

3 TAKE var4 is **2 4 6**

and

-3 TAKE var4 is **6 8 10**



This surface plot is created with the **14 12 RESHAPE ggb** *statement from the TSDATA file example.*

This operator is not limited to variables which are vectors; it can also be applied to matrices. If **var5** is a matrix of 3 rows and 4 columns

1 2 3 4
5 6 7 8
9 10 11 12

then **2 -3 TAKE var5** is **2 3 4**
6 7 8

that is, the first 2 rows of the last 3 columns of **var5.**

The **DROP** operator is very similar to **TAKE.** It is used in an expression of the form

n DROP var

where **n** is the number of observations to be dropped from the variable **var.** If **n** is positive, then **n** observations are dropped from the beginning of **var.** If **n** is negative, then the last **n** observations are dropped from **var.** Using **var4** as defined above,

2 DROP var4 is **6 8 10**

and

-2 DROP var4 is **2 4 6**

DROP can also be used with matrices

1 -1 DROP var5 is **5 6 7**
9 10 11

That is, drop the first row and the last column of the matrix **var5.**

Now that we have reviewed the mechanics of these operators, let's look at some examples of their use. Your Sample Data Sets Disk contains a file called TSDATA. For the following examples, we'll use the variable **ggb** which contains 168 numbers representing monthly traffic volumes over the Golden Gate Bridge for 14 years.

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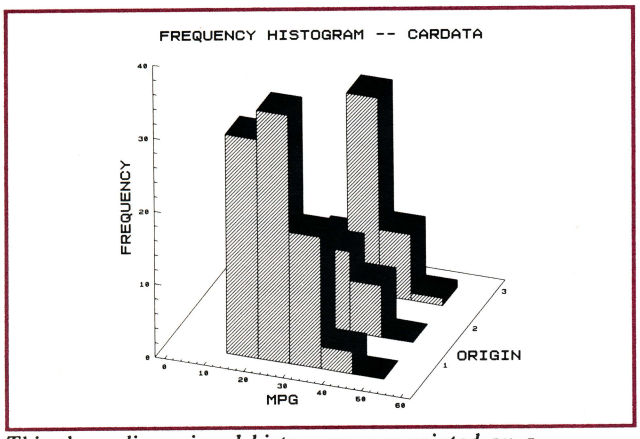
WHAT'S NEW

STSC ADDS ENHANCEMENTS TO SOFTWARE PRODUCTS

STATGRAPHICS Version 2.6

STATGRAPHICS has a new release, Version 2.6, that features added graphics support for more than 40 new graphic driver devices, improved data management facilities, and easier system environment procedures.



This three dimensional histogram was printed on a HP LaserJet printer, one of the many printers supported by STATGRAPHICS *Version 2.6.*

This new version improves the areas that you work with the most, the user interface. Among the new capabilities are:

* The addition of support for over 40 new graphics devices, including the PS/2 VGA graphics adapter and a wide variety of printers and plotters.

* Improved resolution for printers that were supported in earlier versions.

* Added support for film recording devices and Lotus compatible graphics metafiles.

* Easier plotter control, allowing screen-to-plotter output without first saving the graph in a file.

* Improved data editor, making it more flexible and easier to learn and use.

* Easier data import procedures.

* Added import for comma delimited files, and new import/export procedures for ATLAS*GRAPHICS data files.

* Improved capabilities for overlaying graphs and placing multiple graphs on a screen or page.

The STATGRAPHICS 2.6 update includes a complete new set of software, a new tutorial, over 200 pages of new documentation, a new reference card, menu map and a new template. Users of Version 2.0 or 2.1 can upgrade to Version 2.6 for $125 (U.S. and Canada). Users of any Version 1 system can upgrade for $325. STATGRAPHICS retails in the U.S. and Canada for $895, and is available through local dealers worldwide.

ATLAS*GRAPHICS Version 2.1

An updated version of the ATLAS*GRAPHICS software package was released in July. The new version (2.1) includes expanded boundary editing capabilities that give you greater control over customizing your maps.

The new boundary editing features allow you to:

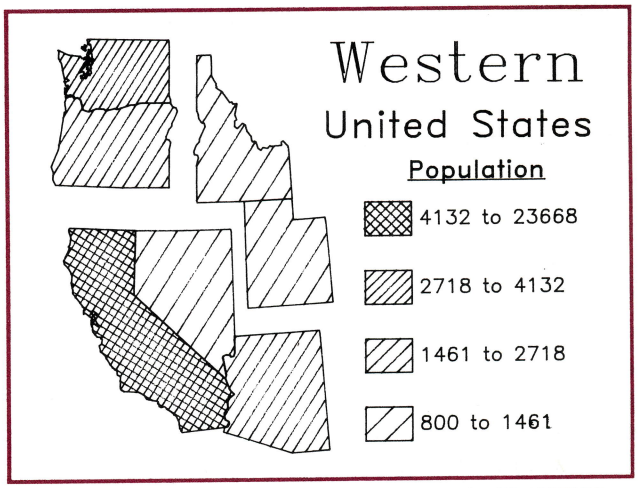
* Explode or combine regions: Separate out map boundaries from adjoining boundaries to improve visual impact. Users can also combine regions into custom regions such as sales territories.

* Graphically add points and circles: Easily add boundary points for specific locations such as stores, headquarters or factories, and add circles with a desired mile radius for trade areas.

* Edit region names: Rename any or all of the regions as desired.

* Show or hide boundaries: Mask regions so that only regions of interest are displayed.

* Delete existing boundaries: Permanently delete certain areas from the boundary file.



The new exploded boundary feature in ATLAS*GRAPHICS *increases the power and clarity of presentation mapping.*

The ATLAS*GRAPHICS 2.1 Update contains three diskettes, a new "Boundary Edit Tutorial," updated Boundary-Reference chapters, and an instruction sheet for the update.

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BUSINESS ANALYSIS GRAPHICS . . .

Continued from page 1

The company also helps its clients identify regional market sub areas. Hospitals could then, for example, promote their obstetrics programs and specialists to a particular geographic area with a high concentration of women in the child-bearing age group. They might also target their geriatric services to an area with a high percentage of elderly residents. With an ever-changing health care environment, tools like ATLAS*GRAPHICS help hospitals provide needed services in their areas.

Statistics and graphics are a logical and powerful software partnership. Such packages are useful to engineers (industrial and quality control), statisticians, business analysts and researchers, among others.

A unique example of using STATGRAPHICS for quality control is testing of bars of Irish Spring Soap by the Eaton Corporation. In consumer goods, appearance is very important. Using a STATGRAPHICS discriminate analysis routine, controllers are able to measure the color striations in a test group of soap bars, then determine what makes a "perfect" bar of soap. When the model profile is developed, STATGRAPHICS is used to assure the striations on new bars meet the company's standard.

A video camera and digitizer generate images of the soap bars. Approximately 65,000 bytes of data are corrected to remove information not related to the green and white stripes. The analyses boil down the corrected information to only a few parameters which classify the correct stripe configuration. Through these analyses, inspectors are able to classify each bar off the production line as acceptable or not.

The varied and growing uses of Business Analysis Graphics demonstrate the emergence of the technology as an integral tool for the business world of today and tomorrow. As more Business Analysis Graphics products are developed, computer graphics will increasingly replace more static data displays in analysis applications. The age of Business Analysis Graphics has arrived.

*These brief examples of STSC's Business Analysis Graphics software in action are only a glimpse of some of the many applications currently in use. PLUS *WARE NEWS will explore in detail a wide variety of applications in future issues. Through these insights, users may not only gain appreciation for the work of others, but perhaps discover new and exciting ways of putting Business Analysis Graphics products to work in their own fields. If you have an application story you would like to share with other users, please write the editor at the address on page 2.*

WHAT'S NEW

Continued from page 4

Registered users of Version 2.0 are entitled to the upgrade free of charge. If you are a registered user of Version 2.0 and have not yet received your update, contact STSC's Orders Department. ATLAS*GRAPHICS retails in the U.S. and Canada for $450, and is available through local dealers or STSC.

ATLAS*GRAPHICS PATCHES AVAILABLE

Patches to system problems observed since the release of ATLAS*GRAPHICS version 2.1 are now available free of charge to registered users. The patches provide the following:

* Consistency in actions of saved zoom windows between files.
* More accurate error messages.
* Better even number ranges in the Data-Ranges-Assign screen.
* Better communication with the Epson HI-80 plotter.
* Consistency in reading decimal points when importing from ASCII data files.
* Better conversion from ATLAS AMP binary boundary files to .ABF format.
* Accurate calculations for label positions on curves made up of only two points.
* Corrected PostPrint-Load commands.

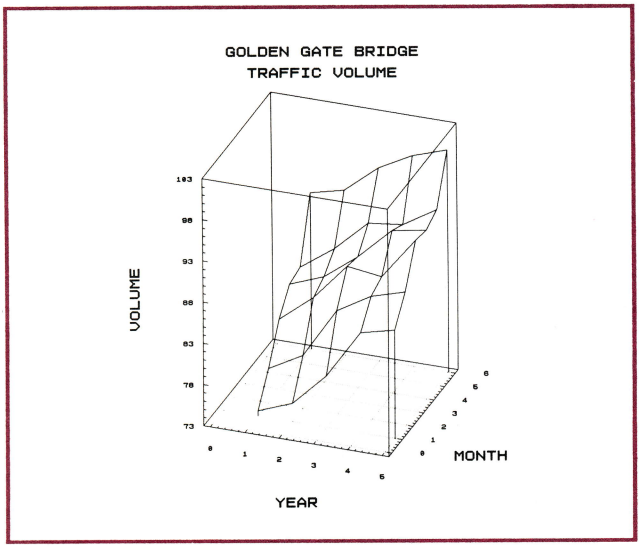
If you have encountered problems in these areas, send the original ATLAS Program, BoundaryEdit, DataEdit, Convert and Utility disks to us so that we may apply the fixes. Keep working copies of the disks so you can continue to use the system while the patches are applied to the originals. Send the disks to: STSC, Inc., Attn: HELPLINE, 2115 E. Jefferson St., Rockville, MD 20852.

CALCOMP PLOTTER SUPPORT AVAILABLE FOR ATLAS*GRAPHICS

PostPrint support is now available for the CalComp ColorMaster/PlotMaster plotter in "printer mode." Plus, a stand-alone PostPlot program is available for any currently supported plotter, plus any CalComp plotter in "PCI mode," including the PlotMaster in "plotter mode."

To get these added features for free, send a blank formatted 360KB 5 1/4" floppy disk to STSC, Inc. (Attn: HELPLINE), stating your system's serial number and that you want the CalComp support files. You must be a registered user to receive the free features.

TREASURE CHEST



This surface plot is created with the **5 6 TAKE 14 12 RESHAPE ggb** *statement from the TSDATA file example.*

Continued from page 3

Let's look at the data graphically. We'll create a matrix using the **RESHAPE** operator and draw a surface plot for years versus months versus traffic volumes. In the input panel for the Surface Plot, set the X-axis minimum to 1, the maximum to 14, and the number of intervals to 13. We will be looking at the data from the first to the fourteenth year. Set the Y-axis minimum to 1, the maximum to 12, and the number of intervals to 11. We will be looking at the data for twelve months. Toggle the Function type field until Matrix Input is displayed. Press F6. When the system requests the grid matrix enter

```
14 12 RESHAPE ggb
```

and press F6.

Fill in the appropriate title fields on the next input panel and press F6.

This gives us an idea what the data looks like, but it is a little cluttered. Let's just look at the first five years and first six months of data. Change the input panel so that the X-axis maximum is 5 with 4 intervals and the Y-axis maximum is 6 with 5 intervals. Then use the **TAKE** operator to select the first 5 rows (years) and first 6 columns (months) from the matrix created above. The grid matrix specification should be

```
5 6 TAKE 14 12 RESHAPE ggb
```

This says to create the matrix as we did above; then, select the first 5 rows and first 6 columns from that matrix. If we wanted the last 5 years' data, we would use the expression

```
-5 6 TAKE 14 12 RESHAPE ggb
```

The operators illustrated above are the most commonly needed operators. For a complete list and examples of the more than 50 operators available in STATGRAPHICS, read section 5-6 and Appendix E of the user's guide.

BULLETIN BOARD

STATGRAPHICS CLASSES

STATGRAPHICS seminars, classes and on-site training are available through Statistical Graphics Corporation. For information on the 1988 schedule or on-site training, call or write:

Statistical Graphics Corporation
5 Independence Way, Princeton Corporate Center
Princeton, New Jersey 08540
(609) 924-9374

APL CLASSES

Many users find that STSC's APL*PLUS System® is a powerful complement to the analytical capabilities of STATGRAPHICS. Classes are held at STSC headquarters in Rockville, Maryland. On-site training is also available. To register or for more information, call STSC at 1-800-638-6660.

November 10 December 15	Pocket APL in One Day
October 19-23	Introductory APL, with Files and FMT
November 2-6	Intermediate APL/Exception Handling, Nested Arrays, Fastfns
December 7-11	Applications Development Using APL/Idioms

COMDEX

Come see the latest versions of STATGRAPHICS and ATLAS*GRAPHICS at COMDEX, the Las Vegas Hilton, November 2-6. We are currently assigned to Booths H7070-7171, but this may change so be sure to check the COMDEX directory.

Q & A

Q. With Version 2.6 of STATGRAPHICS how do I record files for sending to my plotter? How do I then send those files to my plotter?

A. In Version 2.6 it is not necessary to record plots in a plotter file before they can be reproduced on the plotter. If you want to send a plot which is currently displayed on the screen to the plotter, press **F4**. Highlight **Replot Graph** on the plotter and press **ENTER.** The plot will then be drawn on the plotter.

If you want to send graphs to the plotter at a later time, you will need to save them in a file. Graphs can be recorded in plotter files by pressing **Ctrl-F9** before creating the plot, or **F3** while the plot is displayed on the screen. In Version 2.6 there is no difference between **F3**(Savscr) and **Ctrl-F9**(Record).

Q. How can I plot specification limits in STATGRAPHICS using the Xbar chart procedure?

A. Suppose your specification limit is

(μ) (plus or minus) S	where
USL = (μ) + S	and
LSL = (μ) - S	

and you want to place your specification limit on the XBAR control lines. The easiest way to make STATGRAPHICS plot against the specification limit is to do the following:

I. DATA INPUT

1) In the XBAR chart input panel, at the data vector field, enter the variable name or data points which represents your individual measurement.

2) Enter "1" in the subgroup size field so that the system will plot the data individually.

3) Specify the position of the control lines based on "known standard deviation". Enter a known standard deviation that is equal to the distance from the target value (μ) to the specification limit. In the example above, this "known standard deviation" is S.

Continued on page 8

USER FORUM

At STSC, each of our users is a VIP. We need your input to ensure that our products and services meet your needs. We will try to address the more common or intriguing technical problems in **PLUS*WARE NEWS'** Q & A section. However, technical matters are not your only concerns. Your ideas, opinions and even general musings are of interest not only to us but to all users. To further the sharing of thoughts, **PLUS*WARE NEWS** provides a forum to serve as a sounding board for those in the business analysis graphics environment.

Though we are sure that there are enough opinions and ideas out there to fill a few newsletters, we will supply a "Food for Thought" statement each issue to get the creative juices flowing or the blood boiling, or both. Send us your opinion on this statement or anything else related to business analysis graphics. If your letter is printed, you will receive a gift from **PLUS*WARE NEWS.**

To be heard, write:

Editor
PLUS*WARE NEWS
STSC, Inc.
2115 East Jefferson Street
Rockville, MD 20852

Food for Thought

Some think it all started with hand-held calculators. Are young students becoming less adept with basic math skills as they rely more heavily on machines to do the calculations? Now, with easy-to-use statistical software like STATGRAPHICS, even the most complicated procedures are only a few keystrokes away, and with a corresponding graphic besides. Are computers helping young students reach higher levels of capability; or are they keeping them from fully understanding the basics of higher math?

PLUS★WARE PRODUCT INFORMATION LINES

ORDERS	
U.S. and Canada	800-592-0050
Maryland	301-984-5123
International	301-984-5412
Telex	898085 STSC ROVE
Telefax	301-984-5094
Product Updates	301-984-5129
Product Information	301-984-5123
(HELPLINE)	301-984-5489

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4) Press **F6** to go to the Statistical Quality Control Charts panel.

II. PLOTTING

1) At the Statistical Quality Control Chart panel, plot a "1-sigma" chart by specifying the upper control line and lower control line at 1 sigma position. Press **F6** to execute. STATGRAPHICS will show you the appropriate XBAR chart with the upper specification and lower specification being plotted at the target value (μ) plus and minus S.

2) Press **Esc** to return to the Statistical Quality Control Chart panel. Note that the estimated process sigma and CP, CR, and CPK indices are now displayed at the lower part of the screen.

Q. In ATLAS*GRAPHICS, the text-comment screen shows 26 symbols to choose from. How do I get the other 68 available symbols that appear on the separate document sheet?

A. Go to the **Text-Comment-Edit** screen, move the cursor to the position for the symbol, press "+" to add text, and change the Font to "**Symbol.**" You can then type on the Comment line the character that appears under the desired symbol shown on the printed sheet. For example, to get a "heart" symbol, type lowercase "s". When you press **ENTER** and return to the map, the "heart" symbol will be drawn on the spot where the crosshair cursor was.

Q. As a former ATLAS AMP user, which fields do I have to convert after upgrading to ATLAS*GRAPHICS?

A. All boundary files with binary internal representations will have to be converted, (e.g., files with extensions ".BNB" and ".COB"). Old boundary files in ASCII format, such as those made by the user on a digitizer, may be used in ATLAS*GRAPHICS by using ATLAS AMP to convert them into binary format, and then using the CONVERT disk to change them into .ABF format.

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